

## GROWTH OF A SCIENCE CENTRE

OCT-DEC/1987

# Capsule 7



The Centre.

### DISTRICT SCIENCE CENTRE PURULIA ADDS A NEW POPULAR SCIENCE GALLERY

An array of fascinating exhibits are there, all hand-on, that offer to the visitors a variety of experiences. Emphasis has been laid on understanding Light and Vision, and many an optical illusions as well. Exhibits on reflection and refraction of light, principles of the working of prism and different types of lenses, pinhole magnification and so on, explain and elucidate the phenomenon of Light. Here, by manipulating exhibits, one can understand that Light,

Object and Vision are interdependent; Light or Vision has no separate entity without Object. In this gallery, one can dance with one's own coloured shadows, play with exquisitely beautiful Moire Pattern, join in a mirror half of himself with that of his friend, or even, float in air!

The new gallery contains a lot

(Contd. in page 6)



Shri Subhas Chakraborty, Minister of Sports & Youth Services, Govt. of West Bengal, inaugurated the gallery on August 8, 1987. Onlooking is Dr. Saroj Ghose, Director General of NCSM.



## NCSM SPEAKS

CAPSULE's readership is always on steady rise, both in India and abroad. One reason perhaps is that among Asian countries, it is in India Science Museum Movement is gradually gaining ground; and the world is eager to know it. Three decades' soul-searching ushered in new orientations: Science Museums in India ceased to be mere storehouses of artefacts and became institutions of informal learning, through interactive exhibits, and varied programmes, embracing all strata of people. The world wants to know it.

CAPSULE once again invites all like-minded Organisations and individuals to join the forum. In CAPSULE there is room for all.



▲ "Bernoulli's Principle" in Action.

◀ Exhibits on "Peripheral Vision."

# WORKING WITH THE COMMUNITIES

## PURULIA GULBARGA DHARAMPUR TIRUNELVELI

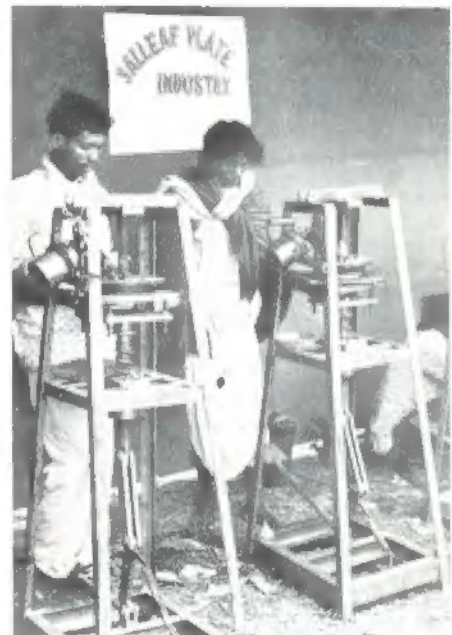
While the bigger, National Level Science Museums and Centres act as umbrellas, it is the District Level Centres that are embedded in the rural milieu—living and working with the community, among the community. In divers corners of India these small Science Centres are working. Scattered across the country are these Centres—in Purulia of West Bengal, Dharampur of Gujarat, Gulbarga of Karnataka and Tirunelveli of Tamil Nadu. More Centres are under planning. National Science Centre in Delhi, when completed, will take charge of the vast Northern region of India, to spread the Science Museum Movement.

Essentially activity-oriented as these Centres are, direction of their programme is two-prong : for children including students, and for

adults of the community. For students there are galleries with assorted interactive exhibits on various scientific phenomena and programmes like Science Camps and Seminars, Popular Lectures, Creative Ability Centres, Sky-Watching, Telescope—Making and so on. Science Demonstration Lectures bring text-book science alive. Teachers' Training Programme greatly contribute in making students more receptive to the messages of science. Aimed at nurturing their creative talents, these are indirect services to the community : doesn't a better student make a better member of the Society ?

Women are given training in basic hygiene, child care and family welfare, nutrition, preservation of food and in sundry aspects of domestic sciences.

Adults are trained in various vocations and in adoption of appropriate technology in their daily life. Improved methods and implements of farming, water-management for drinking and irrigation purposes, subsidiary vocations for lean farming seasons, judicious and optimum utilization of local resources and the environment—many a things are there, for the people to be trained in, in order to uplift their



Training tribal people in utilization of local resources

—District Science Centre, Purulia.

lifestyle. Not transplanting technology, not jeopardizing the community-values, but creating and enhancing in the people a spirit of resourcefulness, self-reliance and self-sufficiency is the aim of these grassroot level Science Centres.



## THE DISTRICT SCIENCE CENTRES

Every event with scientific interest and relevance is taken up by the Science Centres, to popularise science, to enhance science—consciousness. Even their anniversary celebrations are made into occasions for community science programmes. During the celebration of its second anniversary, District Science Centre, Dharampur organised a Science Fair which greatly attracted the local populace. Exhibitions and demonstrations in agriculture, sericulture, horticulture, pisciculture, animal husbandry, cottage industries, improved implements, health and sanitation, nutrition and food-preservation, leprosy, superstitions and tribal beliefs and so on, were well appreciated by the people.



*Training in Sericulture—District Science Centre, Tirunelveli.*



*Introducing technique of low-cost well digging—District Science Centre, Purulia.*

The mechanical ingenuity of the tribals was nurtured by the Centre, by organising last year a training camp in which the first batch of five tribal youth were trained in making pedal-operated paddy—threshers. Since most rural areas lack electrical or hydro-power, the machine has become quite popular among the villagers. The interest generated by this machine has culminated in the form of a modest number of orders received by the trained youth for its manufacture. This programme is now being organised with the active collaboration of the area's Tribal Project Administrator.

Last year, a new technique of seed-bed preparation, known as the Depog System, was demonstrated by the DSC, Dharampur, to the farmers. This technique is unique in the sense that it does not require any soil, it can be prepared indoors, yields better quality of plants in short time and without weed—infestation. Hence this system acquires importance as it restricts further depletion of forest resources. The Centre had been requested by the District Planning Cell, Valsad, to prepare a scheme of pilot projects in tribal villages for the trial of the new technique.



*Teachers' Training Programme—District Science Centre, Gulbarga.*



*Training in making pedal-operated paddy-thresher—District Science Centre, Dharampur.*

VIIIth Indo-US Workshop on  
*Interactive Video Technology  
in Science Centres*  
USA, September 28-29, 1987  
National Council of Science  
Museums ;  
Indo-US Sub-Commission on  
Education & Culture ; and  
Association of Science-  
Technology Centers, USA.

National Science Seminar—  
1987 on *Pollute and Perish ;  
Conserve and Flourish*  
FICCI Auditorium, New Delhi  
September 29, 1987  
National Council of Science  
Museums and State Education  
Departments.

Inauguration of the travelling  
*Science Technology Exhibition*  
in the Festival of India—USSR  
Leningrad, August 20, 1987  
National Council of Science  
Museums assisting Deptt. of  
Science & Technology,  
Govt. of India.

Conference on  
*Organisational Development  
for Educational Institutions*  
Calcutta, November 14, 1987  
Institute of Science,  
Education & Culture, Calcutta.

4 Symposium on  
*Propagation of Drudgery—  
Reducing Technologies for  
Rural Women*  
Bahrigh, December 1987  
Children & Women's Welfare  
Academy, Lucknow, U.P.

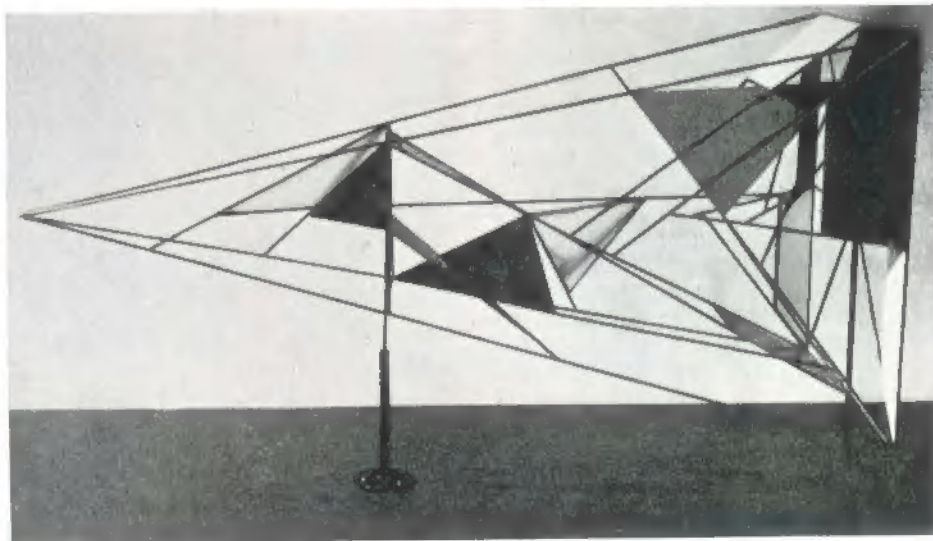
Regional Training Workshop on  
*Solar Energy Utilization*  
New Delhi, December 1987  
UNESCO/ROSTSCA, New Delhi.

Conference on  
*Management of Afforestation,  
Social Forestry and  
Pasture Development*  
Jodhpur, December 1-10, 1987  
Central Arid Zone Research  
Institute, Jodhpur.

National Symposium on  
*Scattering Theory and  
Its Applications*  
Calcutta, December 02-04, 1987  
Indian Association for the  
Cultivation of Science, Calcutta.

Seminar on  
*Low Cost Waste Disposal  
Systems in Rural Areas*  
Calcutta, January 5-18, 1987  
Technical Teachers' Training  
Institute  
Salt Lake City, Calcutta.

## PROJECTED GEOMETRY, OR SEEING ORDER IN CHAOS

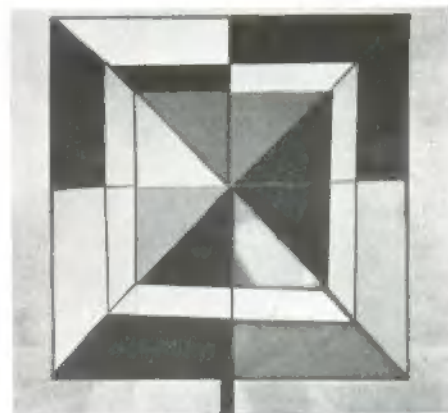


"A heap of broken images"—side view of the exhibit.

**H**ere is a horizontal pyramid with sides made of wire but having neither walls nor base. Inside the pyramid criss-cross many a wire in a seemingly haphazard, almost anarchic way, onto which are placed at different angles, plastic cards of various sizes, shapes and colours. Looked at from above or any of the sides, it seems to be an utterly chaotic arrangement, a complete disarray of geometrical figures thrown at improbable angles. One may tend to call it a cubist sculpture, at the best.

But seeing is not believing, always. When one looks at it through the peephole in the perspex box that is facing the apex of the pyramid, an extraordinary thing happens. Projected through

space to the eye in that particular position, all the shapes, sizes and colours seem to fall on a plane and blend into a harmonious whole. Chaos gives place to order.



Looked through the apex of the pyramid.

Developed at the Birla Industrial & Technological Museum, Calcutta, the exhibit is a new addition to its Popular Science Gallery.



"Science and Technology of India"—the mammoth 2500 sq. mt. exhibition was inaugurated in the fifth pavilion of the exhibition-complex in Leningrad, on August 20, 1987. NCSM conceptualised and fabricated a major segment of 600 sq. mt. area for this exhibition, organised by the Department of Science & Technology, Govt. of India. The interactive, hands-on experience of the exhibits proved to be a sure catch for the Soviet people.

That is what is evident in the visitors flow to the exhibition, as well as in the media-coverage. On August 21 'Pravda' wrote about the exhibition, titling the article as "From the Bank of the Ganga". There the exhibition is lauded in superlative terms. Asserted is the fact that here content, which is the panorama of Indian science and

technology, is matched with a fitting form; the participatory nature of the exhibits, the 'hands-on' presentation is most appealing to all, especially children.

The exhibition is scheduled to remain at Leningrad upto September 18, before opening at Moscow on November 19, 1987 and finally at Tashkent on January 26, 1988.

*Clockwise :*

- (1) Dignitaries of both the countries, at the inauguration of the exhibition. At the extreme left is Dr. S Varadarajan, Chief Consultant, Planning Commission; at the centre is Mr. K R Narayanan, Minister of State for Science & Technology, Govt. of India.
- (2) Graphic panels with text, depicting Indian tradition in medicine.
- (3) There are many a thing, like the 'Brahma's Discs', for the children to put hand on....
- (4) Figuring it out—how on earth does this cone run uphill, defying the Law of Gravitation?



(Contd. from page 1)

more fun and learning. Experimenting with soap-bubbles, interacting with the assortment of electronic exhibits and the like, give people a never-before insight into things. Testing one's memory and assessing one's sense of time against a music are surely the most interesting exhibits, in the electronic group.

A tribute to the people's growing consciousness and a product of popular demand, this new gallery was inaugurated on August 8, 1987, for the people of Purulia.

## WEST BENGAL STATE SCIENCE SEMINAR—1987

Organised and conducted by the Birla Industrial & Technological Museum, Calcutta, the Seminar was held on September 9 in the Museums' auditorium. Thirtytwo students from various schools in the State assembled there to discourse on the theme, "Pollute & Perish ; Conserve & Flourish".

The presentation by Miss Sudipta Banerjee of Jodhpur Park Girls' High School was adjudged the best by a panel of judges comprising noted scientists and teachers of Calcutta. Miss Banerjee will now participate in the final round contest at National Level in New Delhi.

## DISTRICT SCIENCE FAIR—1987

District Science Centre, Tirunelveli, organised and conducted the Science Fair during August 18-20, 1987. Seventytwo students from fifteen schools assembled there with models conceptualised and made by themselves, to mark their creative abilities.

Adjudged by a panel of judges and the students concerned, the 'Portable Bunsen Burner' by Selvan M Arul Joe, a XIth standard student of St. Xavier's Higher Secondary School, Palayamkottai, was the best. 'Singing Bird' by Selvan George Joseph, a student of VIIIth standard, won the second place.

Prizes in the form of books were there, to enthuse the winners ; and they are now eligible to participate in the State Level Science Fair. Culminating level is the Southern

India Science Fair, where students from all the five States in the southern region of India will participate, in early 1988.

## LEARNING SCIENCE IN INFORMAL SETTING— A SYMPOSIUM

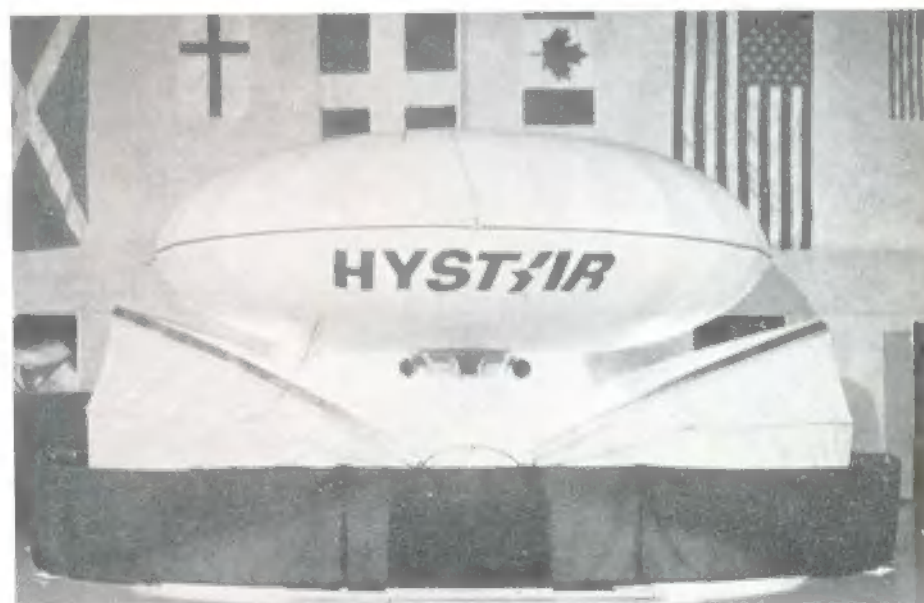
The Chicago Academy of Science is sponsoring a symposium during November 12-15, 1987, on the role that Science Museums play in fostering scientific awareness. Children of today are going to be men of tomorrow, effecting important decisions in the coming century. It is the informal Science Centres that help them in understanding the key scientific concepts. Internationally recognized scientists from various fields of science—e.g., ecology, microbiology, physical sciences, behavioural sciences, engineering etc. are going to participate in this meet. Through exhibits and learning programmes they will present critical scientific ideas and new developments in all areas of science. The symposium will also evaluate the effective role played by Science Centres, Zoos and Parks in disseminating scientific knowledge to all and sundry. The symposium will highlight areas of childhood learning and cognition, of changes in Science Centres propagating scientific literacy. Learning science in such informal atmosphere provided by Science Museums and Centres can become real fun.

## HYSTAR AIRSHIP'S HOURLY FLIGHT, FOR THREE MONTHS

Amidst a cloud of smoke, the saucer like Hystar Airship made its maiden flight on June 13, atop the Museum of Science & Industry in Chicago. Filled with helium and propelled by five rotors, this Airship can fly in any direction without turning and at any working altitude, and can come to a complete halt—all achieved by remote control.

Developed by Hystar Aerospace Development Corporation of Canada, the Airship is so designed as to ply to inaccessible places. Its unique capabilities in air-transport can be utilized by heavy-scale industries. The Airship whose hourly flight continued till September 7, was first viewed by the public during Expo-'86 in Vancouver.

In the course of the Museums' programme "Summer Salute to Flight" was displayed exhibits like 'Historic Aircraft', 'Man in Flight', 'Spaceport', and "Space Exploration". Historic aircrafts like Boeing B40B4, Curtiss "Pusher", Junker's "Stuka", F104 "Starfighter", "Stratosphere Gondola"—all let one have glimpses into the past of flight history. These exhibits truly transport one to the thrilling world of space-adventure.



The Strange Airship

Close interaction is going on for years, between India and the USA, in the field of Science Museums. The series of Workshops that are being held every year since 1982, in both the countries, provide a platform for science museum professionals, to exchange information, experiences and creative ideas. Bilateral exchanges of personnel on study visits contribute a lot to furthering ideas. Exchange of thematic travelling exhibitions disseminate the benefits of these interactions to a wider audience, across the countries. The exhibitions open new horizons of experience and learning to countless people of the two countries.

Indo-US Sub-Commission on Education & Culture in New York coordinates these programmes.

## DESIGN AND CONSTRUCTION OF OUTDOOR SCIENCE PARKS

NCSM conceptualised and established Asia's biggest Outdoor Children's Science Park way back in 1979, at Nehru Science Centre, Bombay. Now, almost every Science Museum and Centre under NCSM has a Science Park as its integral part.

Considering the positive impact of Science Parks on children's informal education, the Science Centres in the USA have taken a plan for establishing such Parks, starting with St. Louis Science Centre in Missouri and the New York Hall of Science in Queens, NY. To tap the Indian expertise in the field, a Workshop was held at St. Louis during April 27-29 1987. Discussions covered extensive topics like philosophy and concept of Science Park, choosing subject matter, mode of presentation, theories and effect on learning activities, design consideration, cost-effectiveness, visitors' service and so on.

At the Workshop NCSM presented one of its publications—a catalogue of Science Park Exhibits, which was well received by the American Science Museums and Centres. With simple line-drawings and captions, the book illustrates more than fifty outdoor exhibits and explain how they work. Exhibit-topics include pendulums, work and effort, rolling balls, fun with mathematics, mechanics, sound and optics.

## INTERACTIVE VIDEO TECHNOLOGY IN SCIENCE CENTRES

This Workshop was held at the Museum of Science in Boston, during September 28-29, 1987. The Workshop included presentations, hands-on demonstrations and panel discussions on the applications and potential abuses of media technology in Science Centres; the use and application of interactive computers in Science Museums; in-house production of videodiscs; and the future of technology in Science Centres.

Dr. Nicholas Negroponte, Director of Media Lab, Massachusetts Institute of Technology delivered the keynote address on "Interactive Video—A Historical & Technical Perspective & State of the Art". Thirteen US Science Centre professionals and designers and their five counterparts from NCSM participated in the Workshop, to generate many valuable new ideas. The NCSM delegation was led by Dr. Saroj Ghose, the Director General.

## "25 YEARS OF SPACE PHOTOGRAPHY"

This rare exhibition of 150 photographs of planetary bodies including Earth and Moon, all taken by high-tech equipments from unmanned spacecrafts, and synthesized by computers on Earth was brought by NCSM from the USA during November last year. Inaugurated at Calcutta, on November 29 1986 the exhibition attracted an unprecedented number of visitors.

After Calcutta the exhibition travelled across India—from Tirunelveli in Tamil Nadu to Bangalore, Bombay and Delhi. Everywhere the scene was the same; people's response was simply overwhelming. Accompanying lectures with slideshows by American and Indian Space-scientists were no less rewarding.

Museums and Centres had also arranged various programmes like "Sit & Draw", "Sit & Write" and

Science-Quiz for youngsters, during the stay of the exhibition.

On August 29, 1987 the exhibition was inaugurated at the Regional Science Centre, Bhubaneswar. Shrikrishna Science Centre in Patna will be the next host.

Of great magnitude and impact that the exhibition is, many more people deserve to see it; and this feeling and popular demand prompted the American authorities to deliver it for good to NCSM, for displaying it at other sites in India. Not to speak of the NCSM units countrywide, Organisations like Indian Institute of Technology, Kanpur; Department of Museums, Govt. of Gujarat; and Vikram A. Sarabhai Community Science Centre, Ahmedabad have already shown positive interest in hosting the exhibition.

(Contd. in page 8)



Shri P V Narasimha Rao, Union Minister of Human Resource Development, taking a glimpse of the Space-photographs, at the District Science Centre at Tirunelveli. Explaining is Dr. Saroj Ghose, Director General of NCSM. At the Minister's left is Dr. S. Varadarajan, Chief Consultant of the Planning Commission.

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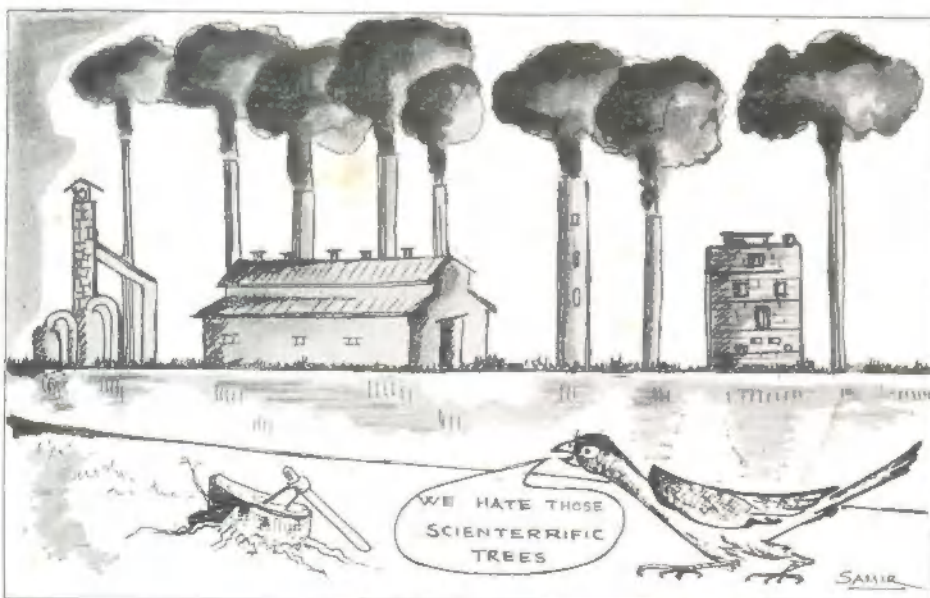


Mr. K R Narayanan, Union Minister of State for Science & Technology at the Space-photography exhibition in New Delhi, listening to Dr. W McLaughlin, Chief Scientist of Jet Propulsion Laboratory, California. Beside the Minister is Dr. S Varadarajan, Chief Consultant of Planning Commission.

## INDIA : A FESTIVAL OF SCIENCE

Chicago, Los Angeles, Portland, Seattle, Charlotte and ultimately Boston. For the last Twentyeight months the 'Festival' had been travelling through these sites in the USA. This mammoth 1500 sq. mt. travelling exhibit, conceptua-

lized, designed and fabricated by NCSM, depicting the Indian scientific and technological tradition over five millenia, attracted well over a million visitors in the course of its sojourn. But there remain many an untravelled place; there



Dr. Samir Banerjee (chronicler of the Great Cockroach Civilization, in Capsule-6) has once again sent this cartoon. Thank you Dr. Banerjee, for this "scienterrific" thing! Hope more and more will follow in future.

remain many a people who want to know more about India—India that was, India that is. ASTC (Association of American Science Technology Centers) feels that more and more American people need to see this exhibition. And that is precisely why they are retaining a shorter version of the exhibition for an indefinite period; and it will travel to many a new place, preaching the message of India.

## THE NEXT...

### National Students' Science Seminar—1987

Theme :

*Pollute and Perish ; Conserve and Flourish*

Rising through Block, District and State levels, thirtyone school students, representing twentytwo States and nine Union Territories of India, will assemble at New Delhi during September 1987, for the final round of contest.

CAPSULE—8 will give you the details.

## WE NEED....

EDITOR CAPSULE is looking forward to your sending by October 31, 1987 publication materials for the Eighth Issue of CAPSULE. Please send short notes, photographs, problems, suggestions, cartoons and puzzles.



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